

A HERPETOLOGICAL SURVEY IN THE VICINITY
OF LAKE SHIPP, POLK COUNTY, FLORIDA

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Polk County is the third largest county in Florida, 1,992 square miles in area. It is situated in the highest section of the State and small areas of it have yet to be despoiled. Many of its numerous lakes are still surrounded by dense woods and swamps. One of the major rivers of south-central Florida, the Peace River, has its origin in the outlet of Lake Hancock, about ten miles from Winter Haven, in Polk County. The principal industries of the region are citrus, cattle and phosphate.

Lake Shipp is one of the county's many medium-sized lakes (about 0.6 miles wide by 0.7 miles long). The north-eastern side of the lake forms the Winter Haven city limits, the south-west side, which is now still thickly wooded, will probably be turned into residential districts within the next few years.

Seventy-six acres of woodland and citrus grove constitute the main locality for my observations between 1944 and 1950. During this period I have collected 52 forms of reptiles and amphibians. These represent almost one-third of the 179 forms recorded from Florida.

The woodland is composed chiefly of pine, bay and palmetto, with scattered oak, cypress, dahoon holly, maple, myrtle and guava. There are 16.5 acres of citrus grove, and the remainder is woodland. The soil is principally Leon Sand.

Specimens of the species listed, with the exception of *Terrapene c. bauri* and *Gopherus polyphemus*, are in my collection. When hatching of snake or lizard eggs is indicated, the incubating medium was damp sawdust or wood shavings—a material which has proven extremely satisfactory. Damp sand is apparently better for turtle eggs.

Species designated by an asterisk indicate new records for the county.

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* *Amphiuma means means* Garden—The “Congo Eel” may be found in numbers, during the spring, summer and fall, under the mats of water hyacinths and other aquatic vegetation along the lake shore. All specimens collected have been rather small; the largest, only 306 mm in total length, was found under the roots of a willow tree removed during some clearing operations on August 28, 1950.

* *Manculus quadridigitatus* (Holbrook)—I have collected ten of these small plethodontids in the area. Four were found among water hyacinths, and six under objects along the lake shore. None were found between 1946 and 1950. On May 14, 1950 a specimen was dug from among water hyacinths. Measurements are 22 mm snout-vent length, 33 mm tail length. Since then, several more have been found.

* *Siren lacertina* Linnaeus—“Mud Eels” are uncommon compared to the preceding species. Specimens have been collected in May, August, and November. Most are rather small; the largest, collected under the same tree root with the previously-mentioned *Amphiuma*, was 407 mm in total length.

Scaphiopus holbrooki holbrooki (Harlan)—Spadefoot Toads are seen about twice a year, following the heavy spring and mid-summer rains. At such times they are abundant, and the chorus is deafening.

Bufo quercicus Holbrook—Oak Toads are abundant throughout the dry pine woods; they appear to be largely diurnal.

Bufo terrestris terrestris (Bonnaterre)—Toads are very common, and may be found all year round.

Acris gryllus dorsalis (Harlan)—Probably the most common frog of the region is the Cricket Frog. Occasionally, I have found it over 100 yards from water.

* *Pseudacris ocularis* (Holbrook)—The presence of any form of *Pseudacris* in this area was unsuspected until February 18, 1950. While digging in a sphagnum bed in search of *Manculus*, two small *Pseudacris* were uncovered. The frogs were apparently just

coming out of hibernation, as they were inactive and an odd shade of grayish-white, which matched the moss they were in. From then until the 19th of March, 12 specimens were taken. March 19th was the first really warm day, and 24 specimens were taken in an hour or so, many more eluding capture. Specimens range from brick-red to dark brown in color. The largest of these frogs taken was 18 mm snout-vent; the smallest was 11 mm snout-vent.

* *Hyla cinerea cinerea* (Schneider)—Green Tree Frogs were formerly abundant in an old overgrown clay-pit about 500 yards from the lake, but they have almost disappeared during the last two years. The largest specimen is 52 mm snout-vent length.

* *Hyla gratiosa* Le Conte—One adult was found in April, 1946. Snout-vent length is 61 mm. This specimen was found in company with numerous *H. c. cinerea*, in the previously mentioned clay-pit. I have seen only six *gratiosa* from the Winter Haven area.

Hyla squirella Latreille—This frog is fairly common and is usually found in palm and palmetto fronds, and under eaves of sheds.

Rana catesbeiana Shaw—Bullfrogs have been found in an old clay-pit, but they seem to be uncommon. The largest specimen measured 195 mm snout-vent.

Rana pipiens sphenoccephala (Cope)—The Leopard Frog is our most common *Rana*. Specimens are frequently found with a snout-vent length of five inches. These frogs appear to be the principal food of *Natrix s. pictiventris*.

Microhyla carolinensis carolinensis (Holbrook)—“Rubber” Frogs, as they are known locally, are usually found in and under rotten logs and other decaying vegetable matter. The most common color phase is light gray.

Eleutherodactylus ricordi planirostris (Cope)—These small frogs are common among litter on the floor of an abandoned barn. Two color phases are found. Thirteen adults and four juveniles of the striped phase were taken. Two measured 28 mm in snout-vent length; the others were about 18 mm in snout-vent length. Seven adults and 6 juveniles of the mottled phase were taken. The largest was only 20 mm in snout-vent length, and the average is about 14 mm in snout-vent length. Specimens were collected in June, September, and October 1949. Three clutches of eggs were

found in another locality, on September 4, 1950, while searching for *Neoseps* in decaying logs.

Alligator mississippiensis (Daudin)—Alligators have occasionally been seen during the past five years. The last one I personally observed, in August, 1948, was approximately three feet long. Later during the same month, a friend and I released a six foot gator from another locality. During September, a neighbor told me that he had killed three gators in one night along the lake shore. None were seen until October, 1949, when it was reported that three young ones had been seen in shallow water. Another was released on September 15, 1950.

Anolis carolinensis carolinensis (Voight)—The Carolina Anole is probably our most common lizard. Specimens may be collected at any time of the year. One deposit of three eggs was found.

Leiolopisma laterale (Say)—Ground Skinks are common among fallen leaves. One female contained five eggs; size of one hatching was 34 mm in total length. My largest specimen measured 40 mm snout-vent length and 80 mm tail length.

Eumeces inexpectatus Taylor—Thirteen *E. inexpectatus* have been collected. Two are exceptionally large, 85 and 86 mm in snout-vent length. These are larger than any of the *Lake Shipp laticeps* that I have collected. From my observations, *E. laticeps* is more often found in dry woods and *inexpectatus* is usually in close proximity to buildings, trash heaps, etc.

* *Eumeces laticeps* (Schneider)—I have collected 8 Broad-headed Skinks from the area. *Eumeces* is very common, but the majority are *inexpectatus*. The largest specimen is rather small for the species—only 80 mm in snout-vent length.

Cnemidophorus sexlineatus (Linnaeus)—“Race-runners” are fairly common on high dry ground. One female deposited four eggs. A specimen collected on March 19, 1950 had a forked tail; the forks being about two inches long.

Ophisaurus ventralis ventralis (Linnaeus)—“Glass” Lizards are common all year round. Large numbers are killed when the groves are cultivated twice a year. Tails of 6 perfect specimens averaged 68% of the total length. On June 10, 1950 a female *Ophisaurus* was found coiled around seven eggs in a small hollow under a box. On other occasions deposits of seven and thirteen eggs were

found in decaying vegetable matter. Size of several hatchlings averaged 85 mm in total length.

* *Farancia abacura abacura* (Holbrook)—Mud snakes are rather rare; only five specimens were taken in three years, and none since April, 1947. One four foot specimen ate a large *Amphiuma*; all other food was ignored. Three were over 36 inches in total length.

* *Diadophis punctatus punctatus* (Linnaeus)—Ring-neck snakes are fairly common. The largest specimen measured 349.25 mm in total length. A female, 286 mm in total length, contained four eggs; several clutches of three to seven eggs have been found. Hatching time of two clutches was about 43 days; the size of one hatchling is about 85 mm total length.

* *Rhadinaea flavilata* (Cope)—Four specimens were collected. One, a female, 207 mm total length, laid four eggs, 20 mm x 4 mm. All specimens were found beneath logs along the creek bank and lake shore. None would accept food while in captivity.

Heterodon platyrhinos platyrhinos (Latreille)—Spreading Adders are common in the area; the last one was seen on November 9, 1949. Males are usually brightly colored, with orange, yellow or red between the scales. One melanistic female, 838 mm in total length was collected. Three females, 814 mm, 736 mm and 650 mm, total lengths, deposited clutches of 28, 17, and 15 eggs, respectively. These averaged 33 mm x 18 mm and took approximately eight weeks to hatch. Eggs were laid on the fifth and ninth of July, 1946.

* *Opheodrys aestivus* (Linnaeus)—Seven specimens were collected; the most recent, a female 762 mm total length was found dead on the road, October 2, 1949. The largest was a male, measuring 967 mm total length. The tail is about 28 per cent of the total length. Captive specimens, although very nervous, fed readily on green, short-horned grasshoppers.

Coluber constrictor priapus (Dunn and Wood)—Blacksnakes are our most common snakes; I have seen as many as 19 in one hour. A female, 1070 mm in total length, laid 20 eggs on May 25, 1947. The eggs hatched about ten weeks later; the hatchlings averaged ten inches in total length. All specimens I have had in captivity would often accept *Eumeces* in preference to other food offered. *Hyla c. cinerea* was also readily accepted. Other items of food

include *Rana p. sphenoccephala*, *Anolis*, *Cnemidophorus*, and an occasional small bird or rodent. Only one case of ophiophagy has been noted; while walking along the lake shore, I noticed a black-snake, about four feet long, attempting to engulf a *Farancia* about three inches shorter than itself. The mud snake was already dead when I arrived upon the scene, so no conclusions could be drawn about the snake's demise. This snake, as with others of its kind, showed no hesitancy about taking to the water to evade capture. Only one case of aggressiveness has been observed, and this was in another locality. A small blacksnake, about three feet long, followed me for about fifty feet along a ditch bank, and persisted in striking at my ankles. There were numerous others of its kind along the bank, as it was a hot April day, but all others carefully avoided me.

* *Coluber flagellum flagellum* (Shaw)—Coachwhips are not common in the area. I have seen six from the tract under observation; the smallest was about five feet four inches, and the largest seven feet two inches. Of about a dozen from the Winter Haven area, these were the palest in coloration, with almost no black or brown anteriorly.

* *Elaphe guttata guttata* (Linnaeus)—Red Rat snakes are scarce in this region. The average length of specimens is about three feet; the largest I've seen was four feet nine inches. Juveniles are more or less common from late September through November. Most of my specimens came from around buildings, occupied or vacant. This snake appears to be very particular about its food habits; small ones sometimes accept *Anolis*, but the almost invariable item on the list is young rodents.

Elaphe obsoleta quadrivittata (Holbrook)—Chicken snakes are occasionally found in the area; they appear to be more common than the preceding species. Average length is about five feet; the juvenile blotches are usually evident on the largest adults. I have seen only a few hatchlings in the wild; one, apparently newly hatched, was found in an abandoned barn on October 10, 1949. This individual measured 349 mm total length, and possessed 39 sharply-defined dorsal blotches. All specimens I have had were excellent feeders, including in their diet rodents, birds, eggs, raw meat, *Anolis*, and *Hyla c. cinerea*.

Lampropeltis doliata doliata (Linnaeus)—Scarlet King snakes are

rare in the Winter Haven area. Two specimens from Lake Shipp have been collected—a specimen 333 mm total length was caught in 1946, and a 487 mm total length specimen was found dead on the road February 12, 1950.

* *Lampropeltis getulus floridana* Blanchard—Four King snakes were caught between 1944 and 1946; none since then. The largest was a male, five feet seven inches total length. A four foot female, captured two months before under the same cover as the male, deposited 10 eggs on July 4, 1946. The eggs averaged 51.6 mm x 19 mm, and hatched on August 28, 1946, 55 days later. The average hatchling size was 363 mm, total length; the coloration was jet black with bright yellow markings. The adults were dull brown, with the male slightly darker in color. The female very closely resembled *L. g. brooksi*. A three foot specimen (September, 1946) was evidently in the transition period, as each of the black scales had a brownish edge. The previously mentioned female was in captivity three years, and during that time was an indiscriminate feeder, with a slight preference for warm-blooded prey.

* *Natrix cyclopion floridana* Goff—Green Water snakes are fairly common along the lake shore. I would say, from the average run of specimens of Florida's three larger types of water snakes, that this species is by far the largest. The average length seems to be about 50 inches. The other two forms, *N. s. pictiventris* and *N. taxispilota*, average about 38 and 33 inches, respectively. This estimate is based on my observations in the South-central Florida area. My largest specimen, a female (April, 1946) was five feet six inches in total length. Most specimens were reluctant to eat, and those that did, ate only fish.

* *Natrix sipedon pictiventris* (Cope)—Banded Water snakes are very common here, as in almost all localities in Florida. Erythrism is not uncommon in this species. Specimens of *pictiventris* are usually very good feeders, with a preference for *Rana* and small fish. Females 793 mm and 853 mm in total length gave birth to litters of 11 and 21 respectively. Litters born to captive specimens indicate that *floridana* is the most prolific of the three forms of *Natrix* known from the area. Observations included litters of 10,¹ 37, 11, and 8 (one female contained 67 embryos) from females of three to five and one-half feet long.

¹ S. R. Telford, *Herpetologica*, Vol. IV, part 5 (1948).

* *Natrix taxispilota* (Holbrook)—Brown Water snakes are less common, and usually smaller (at least in South Florida) than the two preceding species. These appear to be better climbers and are usually found in low branches over-hanging the water, and on dock supports. My specimens were much more vicious than the preceding species, and I have yet to be successful in inducing one to feed. One four foot female contained 47 embryos (June, 1944).

Seminatrix pygaea cyclas Dowling—I have collected only one from this lake, but have seen a few others. The form apparently prefers water hyacinths to other cover.

* *Liodytes alleni* (Garman)—This snake is much more common than the preceding. Numerous specimens were disclosed during a hyacinth eradication program. One female, 508 mm, contained 15 embryos, about 50 mm long. Of six Lake Shipp specimens, only one has a completely plain, unspotted ventral surface. Two have clear ventrals, but the subcaudal dividing line is dark. Three have readily discernible dark spots along the posterior half of the ventrals. A colored slide, made before the preservation of one specimen, reveals the dark spots much clearer than they now appear. I believe these specimens are intergrades between *L. a. alleni* (Garman) and *L. a. lineapiatus* Auffenberg. One juvenile, 160 mm total length was captured on July 22, 1950.

* *Thamnophis sirtalis sirtalis* (Linnaeus)—Garter snakes, once very common, are still found occasionally. Specimens from this region are light green to gray in color. A large specimen, 1120 mm, was captured in July, 1946; the average length is about 30 inches. One litter of four was born dead in August, 1947.

* *Thamnophis sauritus sackeni* (Kennicott)—Ribbon snakes rank second to *Coluber c. priapus* in abundance here. The average length is about 26 inches; my largest was 891 mm. Several litters, all born to females over 28 inches long, numbered 12, 16, 17, 22, and 26. Most were born in July and August. One female, after giving birth to 12 healthy young on July 9th, 1946, gave birth on September 16th to 4 malformed, contorted, dead young. Every litter was accompanied by 2 or 3 yellow infertile eggs. Size of snakes at birth was about 224 mm. Although nervous, these snakes are usually good feeders, preferring *Hyla c. cinerea* to other food.

Micrurus fulvius fulvius (Linnaeus)—Only two Coral snakes have been seen in the Lake Shipp area. One, captured in October, 1947

escaped two days after capture. The other, 534 mm in total length, was caught in January, 1949 as it emerged from a bed of fallen leaves under an oak tree. It disgorged an *Ophisaurus* 163 mm long. Coral snakes are rather scarce in Polk County, and appear to be most conspicuous from October to March.

Agkistrodon piscivorus piscivorus (Lacepede)—I include this form as a doubtful entry, as no specimens have been taken. In early 1944, a moccasin was killed on the lake shore. Unfortunately, positive identification was impossible. Undoubtedly, *Agkistrodon* was found along the lake in previous years.

Crotalus adamanteus—Diamond-backs were plentiful in the area until as late as 1941. Five specimens have been collected or reported by reliable sources since then. One, a juvenile, was permitted to go its way in peace (1946). One was killed by fishermen as it swam up to their boat in early 1947. The largest, 5 feet 3 inches, was captured in November, 1947 in a palmetto area about fifty yards from the lake. On May 23, 1950, at 6:00 P.M., a neighbor killed a diamond-back 38 inches in total length. In November, 1950, some workers clearing a lake front area attempted to kill a five foot rattler, which disappeared in the underbrush. I believe these last three were strays, and that the species no longer breeds in this vicinity. The largest rattlesnake I have seen was killed in an orange grove on Eagle Lake, less than a mile away. This specimen was seven feet three inches in total length, excluding the rattle, and had a circumference of 15 inches. The fangs measured 27 mm along the outside curve. Fortunately I was able to save the skin and fangs. Polk County ranks third in the State in abundance of rattlesnakes ("Florida Wildlife", September, 1949), but I rarely see over five or six a year. Mr. E. Ross Allen tells me that the largest rattler his Reptile Institute has received was a seven foot three inch individual from Polk County. Because of the exceptional length of the Eagle Lake specimen, the following characters may be of interest: sex, male; ventrals, 175; sub-caudals, 26; scale-rows, 34-28-21; 31 dorsal blotches, 7 tail bands, and 7 rattles.

Sternotherus odoratus (Latreille)—Musk turtles up to about one inch in length are exceedingly common. As they mature, apparently they scatter, thin out, and develop more secretive habits. In a half-hour, with a wire scoop along the lake shore, in Spring

and Summer, I can usually catch several dozen of the year's hatchlings. Apparently, no more than two eggs are deposited at a time, with a hatching time of about three months. I believe this species breeds year round, as I have found eggs in all stages of development every month of the year.

Kinosternon bauri bauri (Garman)—Adults and juveniles are equally abundant. The mud turtles lay two or three eggs at a time, in drier material than the preceding species. Adults from creeks and swamps are much darker in coloration than those from the lake. Females are usually paler, almost tan in coloration. These *bauri* are very similar to *K. b. palmarum*.

Kinosternon subrubrum steindachneri (Siebenrock)—Uncommon, juveniles are rare. These turtles grow to a larger size than *bauri*, and their disposition is on a par with the worst of the turtle clan. I have yet to find a specimen in shallow water in this lake, all being taken on hook and line.

Chelydra serpentina osceola (Stejneger)—Snappers are common in Lake Shipp. The largest from the lake weighed 16 pounds. The young are occasionally found in company with juvenile *Sternotherus* and *Kinosternon b. bauri*. Medium-sized and large specimens are often caught while fishing with live bait for bass. The larger ones provide good eating, but the meat is not comparable to *Amyda* meat.

Terrapene carolina bauri (Taylor)—Only one specimen was recorded; an average-sized specimen was captured under a palmetto in October, 1945. The specimen was not preserved.

Pseudemys floridana peninsularis Carr—"Cooters" are common, especially in the Spring. Specimens are easily collected in the morning, while feeding in shallow water. All stomachs examined contained only vegetable matter. Young are occasionally found in late Summer.

Pseudemys nelsoni Carr—Two specimens were recorded. One young adult was found in August, 1949 and a large female was caught in June, 1949. The female laid two eggs, 47 mm x 19 mm in size, a short while after capture. I have found this turtle rather uncommon in all localities.

Deirochelys reticularia (Latreille)—Chicken Turtles are occasionally found in shallow water. In other parts of the county,

they appear to be common, judging from the number found dead on the roads.

Gopherus polyphemus (Daudin)—One medium-sized adult was caught in August, 1948. The soil, locally is not typical of the usual Gopher habitat, which is generally St. Lucie Fine Sand, or Norfolk Sand, so I think this one was a wanderer.

Amyda ferox (Schneider)—Soft-shelled Turtles are rarely seen, probably because of their secretive habits. Occasionally, a large one is caught while fishing. A few young can be found while scooping for *Sternotherus* and *Kinosternon*.